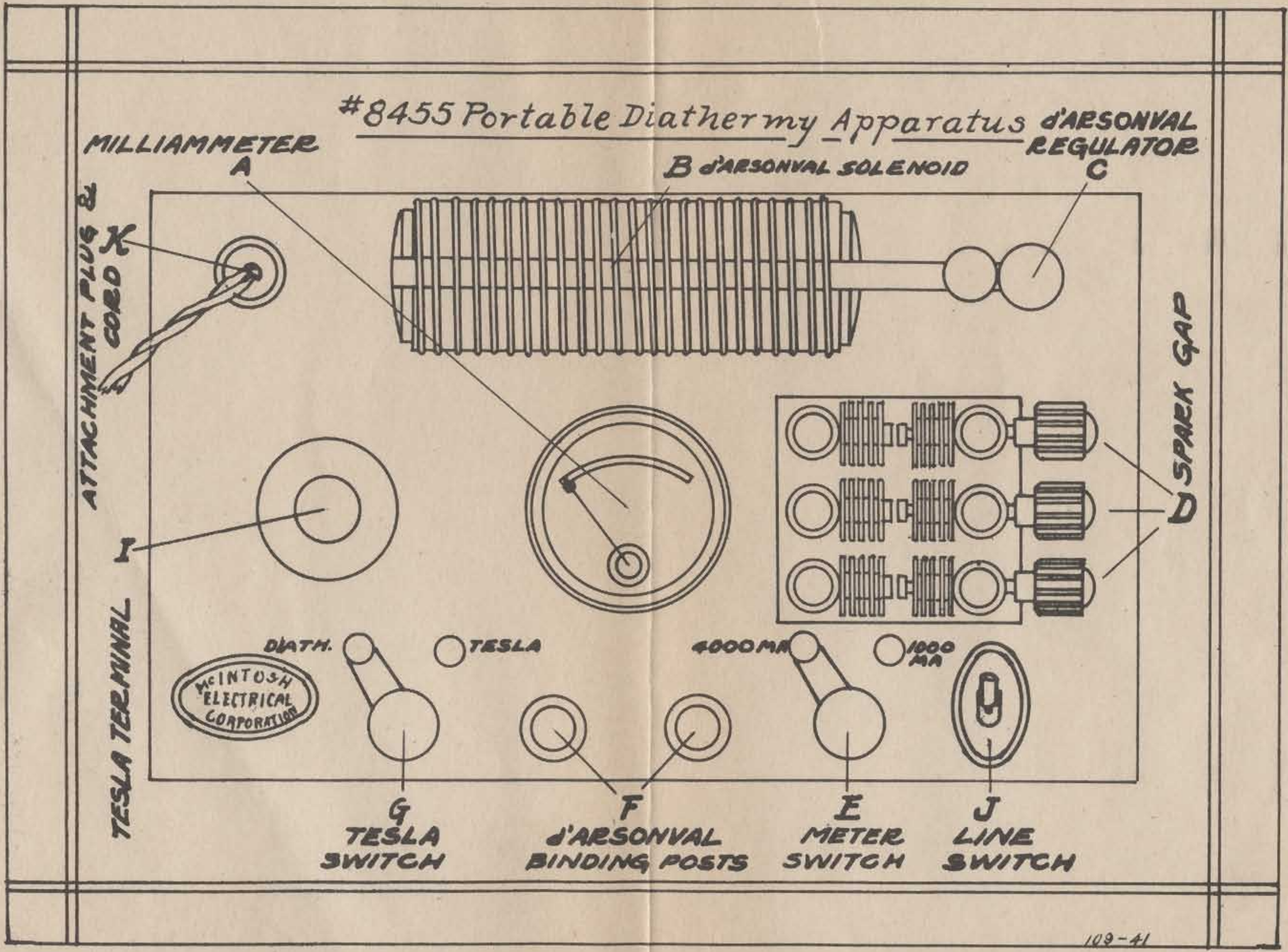
#8455 Portable Diathermy Apparatus



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THE McINTOSH PORTABLE DIATHERMY APPARATUS, #8455

DESCRIPTION (SEE DRAWING)

After apparatus is unpacked, specially note the name plate in the lower left hand corner of the control panel. Observe the form of current which is designated that the apparatus is to operate on. (A.C. or D.C.)

Make certain that this corresponds with the form of current supplied in your office, or wherever the apparatus is used.

This apparatus consumes approximately five amperes of current, and can therefore be connected to an ordinary lamp socket or base plug.

"A" is the MILLIAMPEREMETER, which is used to measure the strength of the d'Arsonval current, when instituting treatments in Diathermy, Auto-Condensation, Electro-Coagulation, etc. This meter does not measure the secondary Tesla Current. (Note the double meter reading to facilitate the reading of low and heavy doses of current which is controlled by meter switch "E").

"B" is the d'ARSONVAL SOLENOID, which consists of a large cylinder around which is wound a moderately heavy wire coil. This Solenoid delivers the d'Arsonval current.

"C" is the d'ARSONVAL REGULATOR, consisting of a sliding rod and spring which engages the inner surface of the wire coil or Solenoid. (Note the numbering of the convolutions from (1) to (22). "C" also controls the strength of the Tesla current.

When the d'Arsonval Regulator is pushed all the way in to the left as far as it will go, the spring is in contact with the first coil marked "1". As it is gradually drawn out to the right, it increases the number of coils in circuit, thus augmenting the strength of the d'Arsonval current, until finally the full strength of the coil is obtained, when the spring engages the coil marked "22".

This naturally affords a very fine regulation of the d'Arsonval current, enabling the operator to begin treatment at zero and up until the desired strength is reached.

"D" is the SPARK GAP. This affords three gaps placed in series. The contact surfaces of these gaps are of Tungsten and to insure an even distribution of current these contacts are 'crowned', offering a convex surface to the spark, thus prolonging the life of the gap.

"E" is the METER SWITCH, and is used to control the two scales of the Milliamperemeter. When amounts of current of 1,000 M.A., or less are used, turn switch point to button marked "1,000". When using heavier doses than 1,000 M.A., turn switch point to button marked "4,000".

"F" indicates the d'ARSONVAL BINDING POSTS, from which cords are attached to patient, and are used whenever the d'Arsonval treatments are carried out, such as Diathermy, Auto-Condensation, Electro-Coagulation, etc.

"G" is the TESLA SWITCH, and is only used to turn on and off the Tesla Coil. This switch should always be at the left post marked "Diathermy" when using the D'Arsonval current, and at the right marked "Tesla" when giving treatments with the Tesla current.

"I" is the TESLA TERMINAL, which is a nickel-plated ball, mounted on a standard. It is used to deliver the Tesla current when exciting vacuum electrodes, or when using this current for fulguration.

"J" is the LINE SWITCH. This is a throw over or 'toggle' type (marked OFF and ON). Throw over the switch to "ON" when you desire to operate. Press it back to "OFF" when treatment is finished, after closing spark gap.

"K" is the ATTACHMENT PLUG WITH CORD, and is used to connect the apparatus with the main line current, which can be accomplished by connecting the plug into the lamp socket.

TO OPERATE

WHEN USING THE d'ARSONVAL CURRENT FOR AUTO-CONDENSATION proceed as follows: See that the apparatus is properly connected and that the Line Switch (J) is off. Set the Meter Switch (E) to the button marked "1,000". See that Switch (G) is at the post marked "Diathermy", and have Spark Gaps (D) almost touching (about 1/64" apart). See that the d'Arsonval Regulator (C) is pushed all the way in to the left.

After patient has been prepared and placed on Auto-Condensation Pad or Chair, connect one cord from one of the d'Arsonval binding posts (F) to the connection on the pad or chair. Connect another cord from the other binding post to the Auto-Condensation Handle, which is then held firmly by the patient.

To commence treatment, throw over the switch "J" to "ON". To obtain the desired amount of current reading on the Milliamperemeter (A), gradually unscrew each Spark Gap, keeping the sparking surfaces as nearly parallel as possible, and also pull out the d'Arsonval Regulator (C) one notch at a time. Take care that Spark Gaps are only widened sufficiently to give a smooth running spark.

DIATHERMY TREATMENTS. Proceed as you would for Auto-Condensation, excepting that the cords from terminals (F) are connected to desired electrodes for the case under treatment.

ELECTRO-COAGULATION. The operation of the apparatus is exactly the same as for Diathermy, except, of course, the change in the nature of the electrodes used.

UNI-POLAR APPLICATIONS FROM THE TESLA. Connect cord and plug to the Line circuit as usual. Place switch (G) at the post marked "Tesla". Connect cord of vacuum electrode handle to the Tesla Terminal (I). Apply the vacuum electrode to the patient then turn on the Line Switch (J) to "ON".

To increase the strength of the Tesla current, pull out the Sliding Rod and Spring (C) to the right, at the same time increasing the width of the Spark Gaps. The best efficiency is obtained when the Spark Gap is not wider than 1/16".

INDIRECT TESLA TREATMENTS. Carry out exactly the same procedure as for vacuum electrode treatment, with the exception that the patient is placed upon Auto-Condensation Pad or Chair, the pad or chair being connected to the Tesla Terminal. The operator then massages the part to be treated with the fingers. The heat is concentrated within the tissues underneath the operator's fingers, and can be readily controlled by placing one or more fingers upon the surface. If sparking is desired, the fingers may be slightly raised and moved briskly over the surface.

NOTE!!! Great care must be used so as not to short circuit the binding posts (F), that is,never allow the cord tips to come in contact with each other, or place any metal between the two posts, because a short circuit at these posts will burn out the milliamperemeter.

HIGH FREQUENCY ELECTRO-THERAPEUTICS

When administering Auto-Condensation, keep a record of the blood pressure, as a sudden rise or fall of several degrees is a danger sign. As Hypertension is caused by Auto-Intoxication, keep the alimentary canal cleaned out, so as to obtain best results.

Auto-Condensation is used when general heating effects are desired. This form of treatment produces profound effects on the vaso-motor mechanism, which causes a reduction in blood pressure and increased metabolism as well as an increased elimination of the products of combustion or toxins. Dilation of the blood vessels occurs. There is also an increase of oxidization and oxygenation. Cell and gland life is stimulated.

MEDICAL DIATHERMY is now being successfully carried out in the treatment of post-operative abdominal adhesions, owing to the High Frequency current's softening effect; also in the treatment of ankylosed joints, acute pneumonia, sciatica, arthritis, chronic bronchitis, paralysis agitans, chorea, angina pectoris, rheumatic conditions, etc.

PNEUMONIA

Extracted from "Diathermy and Its Application
to Pneumonia," by Harry Eaton Stewart, M. D.

"In treating a single lobe, plates of the size 5" x 7", anteriorly and posteriorly, are sufficient.

The patient may lie on the posterior plate which, by means of a folded towel, sheet or small cushion placed under it, is firmly pressed to the back.

The anterior plate may be gently held on the chest, strapped on with adhesive, or held by an encircling towel or sheet, or secured by a light sand bag.

From 800 to 2,000 M. A., of current may be employed. The growing tendency is to use the lesser degrees of current. When it is desired to treat more than one lobe, electrodes of sufficient size to cover the area involved, are used and because of the decreased current density produced, larger currents up to 2,000 M.A., may be employed.

In treating both lungs, it is better to apply the Diathermy to first one and then the other. In treating bronchitis, electrodes about seven inches square may be used directly over the affected area, with the current strength of from 1,000 to 1,500 M. A. Diathermy should not be used when there is cavity formation in the lungs, with the evident danger of instituting hemorrhage.

In his Pneumonia work, the author has used the composition 32 gauge flexible metal electrodes and considers them the best for general use. This metal comes in sheets and is supplied by all instrument dealers at a moderate cost per pound. We cut our electrodes in convenient sizes and shapes, using as a rule a pair of plates about 4" x 7", varying the sizes according to the number of lobes involved and the size of the patient.

The electrodes should be cut out slightly larger than needed, after which all edges should be turned sharply back for about a quarter of an inch on three sides and rolled down flat. A longer flap may be left on one end to which the cord clip may be attached.

In treating other areas than the chest, these electrodes may be slit down the center of one side or end so that they will overlap and fit such curved surfaces as the point of the shoulder.

ELECTRO-COAGULATION (Sometimes called Surgical Diathermy). Production of sufficient heat to perform bloodless operations, is carried out. Sufficient heat can be produced in any local area to actually coagulate the tissues. Consequently, there is little or no surgical shock, the parts are thoroughly sterilized, heal quickly and patient's convalescence is consequently rapid.

With this apparatus, it is not advised to attempt any heavy coagulation work. Its capacity is essentially for minor pathological conditions, such as diseased tonsils, small hemorrhoids and other conditions on the same order.

In coagulating tissue in this manner, it is possible to leave normal cells intact. The blood and lymph channels are sealed, lessening the likelihood of metastasis in cases of malignancy.

TESLA VACUUM ELECTRODE TREATMENTS. In using the Tesla current in this manner, the Spark can be adjusted to a very fine point, and is very valuable in the treatment of various skin conditions, in instituting hyperemia in debilitated tissues.

UNI-POLAR INDIRECT TESLA APPLICATION. This is very valuable when treating cases of congestive headache, the various myalgias, neuralgias, and wherever a mild local heating effect is desired.

This is accomplished by the operator drawing the current through any part from the patient, by the employment of his fingers.

If the apparatus should fail to deliver any current, first examine fuses. If you will lift off the meter (it is not fixed in any way--merely lift it up), you will find these fuses directly underneath. If found O.K., next examine and test at terminals on apparatus. (Oftentimes cause of trouble will be found in the electrode cords). Two spare fuses are supplied with this apparatus.

Never give more than 100 M.A., per square inch of active electrode, a degree less is advised. Block tin makes a good electrode for applying high frequency or diathermy currents. It can be shaped easily to contour of part to be treated, and can be fastened down by bandaging, or adhesive tape.

Do not apply any of the currents mechanically. Use your thinking powers. Apply them definitely for a definite purpose.

When leaving the apparatus, after "office hours" or on completion of any treatment, see that switch is not closed, and all modality regulators, etc., are set "to begin again." Strict observance of this rule will prevent any unnecessary trouble to the apparatus, and therefore, save you time.

Do not use Diathermy in any case of ulcer of stomach. This is obvious.

Do not apply Diathermy or heat current over kidneys, bladder, uterus, tubes, ovaries or prostate, if there has been recent bleeding from any of these organs.

Do not apply heat currents to lung in advanced tuberculosis, if there is cavitation or liability of hemorrhage.

Do not apply heat currents or heavy high frequency currents to a patient just after a full meal.

Do not apply heat currents, (Diathermy or heavy high frequency currents, auto-condensation or bi-polar applications) to patient whose bowels are full of scybalous masses or foul material. The sudden absorption into the circulation of immense quantities of entero-toxines may send blood pressure up to dangerous limits.

Do not subject patients with a pulse pressure of less than 20, to heavy high frequency currents.

Do not give too long treatments when just starting a new patient on treatment with auto-condensation. Try the case out with two or three lighter doses before giving him a full dose.

Do not forget that auto-condensation will raise subnormal blood pressures, as well as lower the abnormally high ones.

Do not apply Diathermy currents direct to any case of walled-in pus such as abscess, pus tube, broken down tubercular glands, etc. The enclosed germs may be stimulated into sudden activity, the wall weakened or destroyed and a scattering of the infection to other parts result.

Do not apply Diathermy to uterus in pregnancy for obvious reasons.

Diathermy often aggregates an acute articular rheumatism.

In old people with advanced arterio-sclerosis, do not push high frequency to the point of producing fatigue. Too heavy a current, too abruptly subjecting them to the full strength, or too long an application may produce collapse.

Caution patients not to indulge in too heavy exertion right after Diathermy. The longer they rest, the better effect the treatment will have.

Do not pass heavy Diathermy currents directly through a very weak heart. Mild currents are beneficial, but the use of heavy currents may prove disastrous. Also mild Diathermy currents will raise the temperature of internal organs situated near a plexus of nerves much faster and higher than heavy currents. This is because a lighter current does not appreciably effect the reflexes while a heavier dosage stirs them into full activity, sending great quantities of blood through the part, carrying away the heat as fast as it is formed.

McINTOSH ELECTRICAL CORPORATION,
223 - 233 No. California Avenue,
Chicago, Illinois.